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# Evaluation of the Farmers' Market Coupon Demonstration Project

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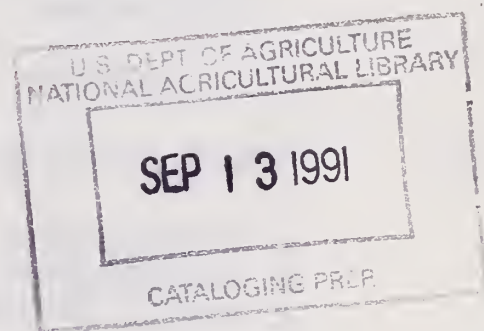
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REVISED DRAFT

EVALUATION OF THE  
FARMERS' MARKET  
COUPON DEMONSTRATION PROJECT

March 22, 1991

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# **EVALUATION OF THE FARMERS' MARKET COUPON DEMONSTRATION PROJECT**

## **EXECUTIVE SUMMARY**

The Farmers' Market Coupon Demonstration Project (FMCDP) provides coupons redeemable for fresh fruits and vegetables at farmers' markets to selected participants in the Special Supplemental Food Program for Women, Infants, and Children (WIC) in addition to their regular WIC benefit. The project is funded by both Federal grants and State funds, and is designed to (1) aid small farmers by promoting farmers' markets, and (2) help WIC participants by providing them with fresh fruits and vegetables. The FMCDP is currently operating in ten States and entails the distribution of over \$3.5 million in coupons annually on behalf of more than 250,000 women, infants (over 4 months of age), and children. Approximately 2,500 farmers currently participate in the project at more than 250 markets.

The FMCDP evaluation consisted of two parts: a Process Evaluation and an Impact Evaluation. The objective of the Process Evaluation was to assess FMCDP operations in each State and to determine if Federal grant requirements were being met. The objectives of the Impact Evaluation were to ascertain the impact of the FMCDP (1) on the women who received the coupons, and (2) on the participating farmers.

### **PROCESS EVALUATION**

Four independent consultants were hired to conduct the Process Evaluation. They visited each of the participating FMCDP States during 1989 and conducted interviews, observed project operations, and reviewed FMCDP records. Key findings of the Process Evaluation include the following:

- **The introduction of Federal funding resulted in rapid project expansion in all nine of the FMCDP States that had a State-supported project in place prior to 1989. The number of FMCDP coupon recipients was three times as great in 1989 as in 1988. Most States experienced difficulty adjusting to this new level of operations, even though the actual growth was typically somewhat less than what was expected (see page 10).**
- **Nearly every State underestimated the staffing and physical resources needed during the first year of FMCDP operations. During 1989, every State was in compliance with the 12 percent administrative cost cap on total costs, but smaller projects, in particular, experienced difficulty generating enough funds to pay for all required administrative functions. Most States arranged for the donation of many hours of in-kind assistance during 1989, and it was generally observed that the FMCDP could not have functioned effectively without in-kind support (see pages 10 and 11).**
- **The greatest operational problem in many States was coupon inventory control and the potential for abuse. The coupon issuance cycle required coupons to change hands many times and controls were often lax in identifying**



the number of coupons being transferred. States faced a tradeoff between accountability and convenience. The measures that increase accountability and help guard against fraud are precisely those features that make coupon redemption a less convenient process. Only two States had plans and procedures in place to conduct one-to-one reconciliation of coupons (see page 13).

- The availability of "viable" farmers' markets (i.e., farmers' markets not dependent on the FMCDP for their existence) played a substantial role in the degree of success of the demonstration projects. Experience with urban retail markets and satellite markets at WIC clinics demonstrated the problems that can occur when viable farmers' markets are not available to serve an area (see page 14).
- Redemption rates for FMCDP coupons were substantially lower than those for regular WIC benefits. During 1989, individual States experienced varying rates of FMCDP coupon redemption, ranging from under 50 percent to over 80 percent. This contrasts sharply with an overall redemption rate of about 90 percent for regular WIC benefits (see page 7, Table I.1).

## IMPACT EVALUATION

Price Waterhouse was hired to conduct the Impact Evaluation and to prepare this report summarizing the results of both evaluations. The Impact Evaluation consisted of two surveys: a telephone survey to assess the impact of the FMCDP on women; and an in-person survey to assess the impact of the FMCDP on farmers.

### Impact on Women

The telephone survey was administered to two groups of WIC women (women who received coupons and women who did not receive coupons) in order to evaluate the impact of FMCDP participation. Key results of that survey include the following:

- Consumption of fruit and vegetables is higher among WIC women who receive FMCDP coupons. Coupon recipients consumed an average of 3.6 servings of fruit and 4.1 servings of vegetables daily, as compared to 3.4 servings of fruit and 3.9 servings of vegetables for non-recipients. This represents a 6 percent difference in fruit consumption and a 5 percent difference in vegetable consumption (see page 23, Table III.3).
- Patronage of farmers' markets is greater among WIC women who receive FMCDP coupons. Only 31 percent of the non-recipients reported that they shop at farmers' markets as compared to 60 percent of the coupon recipients. It is not certain, however, that increased market patronage is a direct consequence of coupon issuance. The way WIC women were selected to

receive coupons may have reflected a bias toward women who shop at farmers' markets (see page 27, Table III.5).

- **The above effects appear to continue after women stop receiving coupons.** An analysis of women who received coupons in prior years but not this year revealed consumption and market patronage levels nearly equal to those of current coupon recipients (see pages 23 and 25, Table III.3).
- **Information at WIC clinics may also be an effective means of increasing fruit and vegetable consumption.** WIC women who indicated that they had received information at the WIC clinic on how to prepare or eat fresh fruits and vegetables were found to consume more fruits and vegetables than those who did not report this type of instruction. This result is independent of FMCDP participation, but is not conclusive since health-conscious women may be more likely to remember or report nutrition education (see page 25, Table III.4).
- **Women who participate in FMCDP strongly support the project.** Two-thirds of the women stated they were "very satisfied" with the project. Only 3 percent said they were "somewhat dissatisfied" or "very dissatisfied" with the project (see page 35, Figure III.2).

#### Impact on Farmers

The in-person survey was administered to two groups of farmers (those who participate in the FMCDP and those who do not participate in the FMCDP) in order to evaluate the impact of FMCDP participation. Key results of that survey include the following:

- **Farmers who participate in FMCDP generally have larger farming operations.** One-half of the farmers participating in the FMCDP farm over 15 acres, while one-half of the non-participating farmers farm less than 3 acres. This may be a result of the way participating farmers and markets were selected, with preference often given to established operations (see page 38, Table IV.1).
- **Farmers have realized relatively small increases in sales as a result of the FMCDP.** Over 80 percent of the farmers we interviewed had received less than \$500 in FMCDP coupons. On average, participating farmers reported a 12 percent increase in farmers' market sales since participating in the FMCDP. However, 55 percent of the participating farmers reported less than a 5 percent increase in sales (see page 43, Table IV.4).
- **Most farmers have not altered their farming operations as a result of the project.** Less than one-third of the participating farmers mentioned any change

in prices, crop plan, time selling at markets, or display and packaging of products since participating in the FMCDP (see page 45, Table IV.6).

- **Participating farmers strongly support the project.** Nearly 90 percent said they thought the project should be continued either as is or with minor modifications. Only one of the 265 farmers interviewed felt the project should be discontinued (see page 48, Table IV.7).



## **I. INTRODUCTION**

Section 501 of the Hunger Prevention Act of 1988 (Public Law 100-435), enacted by the Congress in September 1988, authorized Federal funding for up to ten State projects collectively referred to as the Farmers' Market Coupon Demonstration Project (FMCDP). Under the FMCDP, participants in the Special Supplemental Food Program for Women, Infants, and Children (WIC) are provided coupons that can be redeemed for fresh fruits and vegetables at participating farmers' markets in addition to their regular WIC benefit. The FMCDP is intended to benefit both the coupon recipients, through food supplements, and farmers who sell their produce at farmers' markets, through increased income.

### **A. LEGISLATIVE APPROPRIATIONS**

Seventeen States submitted applications for FMCDP grants outlining how their projects would operate and the amount of Federal funds they would require. Following a competitive rating process, the U.S. Department of Agriculture Food and Nutrition Service (FNS) awarded Federal grants to ten of these States. Each year the availability of FMCDP grant money is subject to the Federal appropriations process.

The Hunger Prevention Act authorized \$2 million for Fiscal Year 1989, \$2.8 million for Fiscal Year 1990, and \$3.5 million for Fiscal Year 1991 in Federal grant money to fund the FMCDP. The Rural Development, Agriculture, and Related Agency Appropriations Act for Fiscal Year 1988 (Public Law 100-460, enacted October, 1988) appropriated the full \$2 million in Federal FMCDP grants for Fiscal Year 1989. Requests for 1989 Federal funding from the ten FMCDP States totalled more than \$2.7 million. Therefore, each State's request was reduced by the same proportion for a total appropriation of \$2 million. The Fiscal Year 1990 appropriation was \$2 million as well. The Fiscal Year 1991 appropriation was \$2.75 million, providing some increase over the Fiscal Year 1990 appropriation.

Due to worsening State financial situations, some States may be unable to provide the State funds necessary to continue planned FMCDP operations during Fiscal Year 1991. In addition, some smaller projects have experienced lower participation levels than expected and, therefore, have unspent funds from Fiscal Years 1989 and 1990 which can be used for 1991 operations. Also, should it become necessary, USDA may reallocate any funds from any State that is unable to accept all of its Fiscal Year 1991 grant.

### **B. THE WIC PROGRAM**

The WIC program is administered by FNS in cooperation with State and local health departments and related agencies. WIC provides supplemental food packages, nutrition education, and health care referrals to low-income, nutritionally

at-risk women (who are pregnant, postpartum, or breastfeeding), infants, and children. There were about 4.5 million WIC participants nationwide each month in Fiscal Year 1990, of which 23 percent were women, 33 percent were infants, and 44 percent were children.

WIC supplemental food packages are usually provided in the form of vouchers or checks redeemable for specific food items at authorized retail food stores. The average monthly food package cost was \$30.27 per person in Fiscal Year 1990. The types of supplemental foods contained in the packages include milk, eggs, cheese, juice, cereal, dried legumes, peanut butter, and infant formula. Fresh fruits and vegetables are not included in the regular food package.

#### **C. THE FARMERS' MARKET COUPON DEMONSTRATION PROJECT**

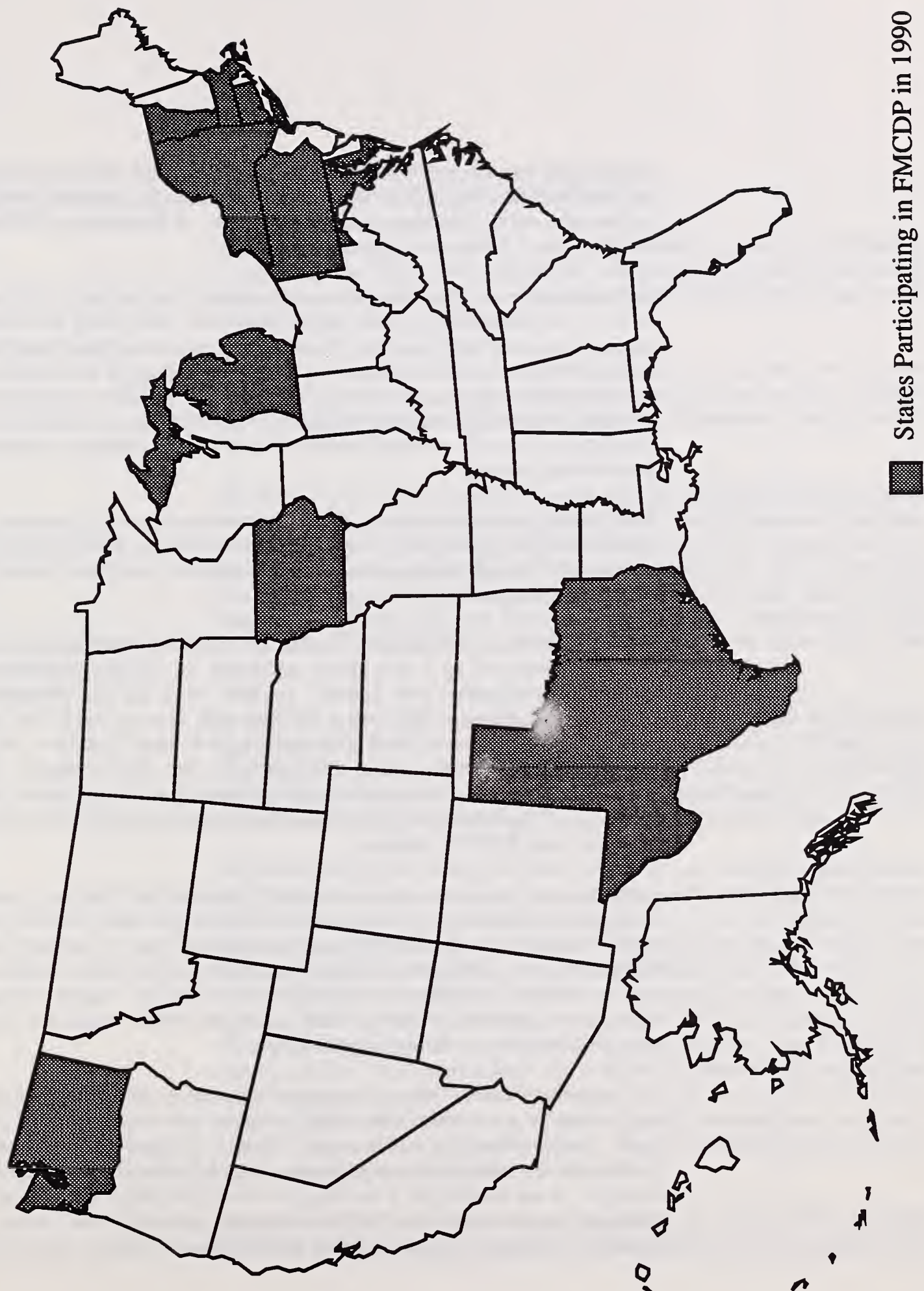
Farmers' Market Coupon Demonstration Projects are currently operating in ten States:

- Connecticut
- Iowa
- Maryland
- Massachusetts
- Michigan
- New York
- Pennsylvania
- Texas
- Vermont
- Washington

A map of the United States highlighting each of the ten FMCDP States is provided in Figure I.1.



**FIGURE I.1**  
**FMCDP STATES**



The FMCDP supplements WIC food packages by providing coupons redeemable for fresh fruits and vegetables. The FMCDP also provides monetary benefits to farmers who sell their produce at farmers' markets. A description of the coupon distribution and redemption process follows.

WIC participants are given farmers' market coupons totalling \$10 to \$20 per year in \$1 or \$2 denominations when they come to the WIC clinic for scheduled appointments early in the summer (typically, coupons are distributed beginning in the month of June). WIC participants must be over the age of four months to be issued FMCDP coupons. States may impose other eligibility requirements or priorities for receiving coupons as they see appropriate (e.g., most States limit distribution to specific geographic areas, and some give priority to pregnant or breastfeeding women).

Some States pre-identify coupon recipients by name based on their priorities, while others distribute entirely on a first-come, first-served basis. Most recipients also receive some form of nutrition education explaining how to buy and prepare fresh fruits and vegetables.

Farmers' markets are authorized by the State agency which administers the FMCDP directly or by a sub-agency which has an ongoing promotional or regulatory relationship with farmers' markets, such as the Massachusetts Federation of Farmers' Markets. Markets and farmers apply for project participation and are evaluated with criteria which vary from State to State. Evaluation criteria may include membership in the local Farmers' Market Association, evidence of non-discrimination, hours of market operation, market location, and the amount and proportion of sales involving products that could be purchased with FMCDP coupons.

Recipients use the farmers' market coupons to purchase fresh fruits and vegetables from authorized farmers at farmers' markets. States also define which foods are eligible for purchase with FMCDP coupons. Eligible foods are generally limited to fresh (unprocessed) fruits and vegetables grown by the farmers selling at the farmers' market. Most States prohibit the use of FMCDP coupons to purchase foods grown outside of the State. If the coupon face value exceeds the purchase price, farmers are not allowed to give change.

The authorized farmers redeem the coupons they receive for cash. In some States the "coupon" is a negotiable check that the farmer may deposit directly into the bank. In other States, a true "coupon" is used. Coupons received from WIC participants are either redeemed by farmers for cash immediately via the market manager, or are bundled for processing at a central location. Farmers are then paid by check for the value of coupons turned in (generally within one to three weeks). Coupons are only good for the growing season in which they are issued.



#### **D. SUMMARY OF FMCDP OPERATIONS**

Each FMCDP State is required to annually submit a Report of Operations documenting the prior year's experience and presenting plans for the future. Table I.1 summarizes the 1989 operations in each FMCDP State as found in their annual reports.

The demonstration projects began in 1989. Nine of the ten States had operated State-funded farmers' market coupon projects prior to the receipt of Federal funds. Maryland was the only participating State that operated a coupon project for the first time in 1989.

The State Department of Agriculture is the lead agency in eight of the ten States, with the State Department of Health leading the project in Texas and Washington (Row 1b of Table I.1). During 1989, seven States distributed coupons and three States distributed negotiable checks (Row 1c of Table I.1). Half of the States distributed coupons or checks worth \$2 each, while the other half issued \$1 denomination coupons/checks (Row 1d of Table I.1). Approximately 2,500 farmers participated in 1989 at more than 250 markets (Rows 2a and 2b of Table I.1).

Overall, the average WIC population during 1989 in the ten FMCDP States was approximately 1.2 million women, infants, and children (Row 3 of Table I.1), of which only 23 percent were issued coupons (Row 5 of Table I.1). The percentage of the WIC population served by the FMCDP varied significantly by State, ranging from a low of 7 percent in Michigan to a high of 99 percent in Iowa.

The total Federal grant money for 1989 (\$2 million) was distributed among the ten FMCDP States in proportion to the amount requested in their grant applications. Because States with less experience operating farmers' market projects were less prepared to support an extensive demonstration project, the average federal grant dollar amount per WIC participant varied significantly from State to State. For example, the six States that did not operate coupon projects prior to 1988 received between \$0.82 and \$1.63 in Federal grant money per WIC participant during 1989 (Row 6b of Table I.1), and were able to distribute coupons to no more than 20 percent of their WIC participants. In contrast, the four States that operated coupon projects since 1987 or earlier received between \$2.80 and \$5.56 in Federal grant money per WIC participant. Three of those States distributed coupons to over 60 percent of their WIC participants. The average Federal grant per WIC participant in the ten States was \$1.66 overall.

Most States distributed coupons to all categories of eligible WIC participants (Rows 1e, 4a through 4d of Table I.1). Overall, approximately two-thirds of the

TABLE I.1

# SUMMARY OF FMCDP OPERATIONS AND CHARACTERISTICS OF THE WIC PROGRAM - 1989

	CT	IA	MD	MA	MI	NY	PA	TX	VT	WA	Total
(1) Characteristics											
a First Year of State Operation	1987	1987	1989	1988	1988	1988	1988	1988	1987	1988	N/A
b Lead State Agency	Agri	Agri	Agri	Agri	Agri	Agri	Agri	Health	Agri	Health	N/A
c Instrument (Check/Coupon)	Check	Check	Coupon	Coupon	Coupon	Coupon	Coupon	Coupon	Coupon	Check	N/A
d Denomination	\$2	\$2	\$2	\$2	\$1	\$2	\$1	\$1	\$1	\$1	N/A
e Target Population	All WIC	All WIC	All WIC	Pregnant/ Breastfeed	Pregnant/ Breastfeed	All WIC	Pregnant/ Breastfeed	Non-Infant	All WIC	Non-Infant	N/A
(2) FMCD Project Size											
a Participating Markets	20	36	7	41	10	63	49	11	18	6	261
b Participating Farmers	100	376	150	173	270	600	300	336	100	83	2,488
(3) WIC Population (FY89 Average)											
Monthly Total	46,875	44,335	44,529	64,123	141,658	312,180	175,913	311,018	14,562	51,267	1,206,460
(4) Coupon Recipients											
a Total	37,111	43,723	6,519	38,552	9,800	61,818	13,492	56,728	3,564	6,166	277,473
b Women	5,938	9,984	1,755	17,401	3,053	15,881	13,492	18,778	1,011	2,959	90,262
c Infants	7,470	5,211	1,519	5,033	0	13,164	0	0	256	0	32,653
d Children	23,703	28,518	3,245	16,118	6,747	32,773	0	37,950	2,297	3,207	154,558
(5) Percent Receiving Coupons											
Percent of Total	79%	99%	15%	60%	7%	20%	8%	18%	24%	12%	23%
(6) FMCDP Authorized Funding											
a Federal Grant	\$164,800	\$246,600	\$52,200	\$235,000	\$115,800	\$508,600	\$167,400	\$416,800	\$40,800	\$51,000	\$2,000,000
b Per WIC Participant	\$3.52	\$5.56	\$1.17	\$3.66	\$0.82	\$1.63	\$0.95	\$1.34	\$2.80	\$0.99	\$1.66
c Per Coupon Recipient	\$4.44	\$5.64	\$8.01	\$6.10	\$11.82	\$8.24	\$12.41	\$7.35	\$11.45	\$8.27	\$7.21
(7) FMCDP Coupons Issued											
a Total Dollars	\$371,110	\$437,232	\$85,190	\$385,500	\$147,000	\$845,800	\$269,840	\$907,648	\$35,640	\$61,660	\$3,526,620
b Average per FMCDP Farmer	\$3,711	\$1,163	\$435	\$2,228	\$544	\$1,410	\$899	\$2,701	\$358	\$743	\$1,417
c Average per Recipient	\$10	\$10	\$10	\$10	\$15	\$14	\$20	\$16	\$10	\$10	\$13
(8) FMCDP Coupons Redeemed											
a Total Dollars	\$203,144	\$302,222	\$34,060	\$228,497	\$120,838	\$598,426	\$164,379	\$748,052	\$16,574	\$30,107	\$2,446,299
b Percent of Issued	55%	69%	52%	59%	82%	71%	61%	82%	47%	49%	69%

Source: Individual State Operations Reports for 1989



coupons were distributed on behalf of WIC infants and children, with the remaining one-third distributed on behalf of the WIC women. (Coupons distributed on behalf of infants and children were normally given to a parent or other adult guardian.) Three States focused their distribution efforts more heavily on WIC women because they (and their unborn or nursing children) were considered to be at highest risk nutritionally. In Massachusetts and Washington one-half of the recipients were WIC women, and in Pennsylvania all of the recipients were WIC women.

The total face value of coupons issued during 1989 (Row 7a of Table I.1) varied from less than \$100,000 for those States operating modest demonstration projects (Maryland, Vermont, and Washington), to nearly \$1,000,000 for each of the largest projects (New York and Texas). The total dollar value of coupons issued during 1989 was over \$3.5 million. Of this total, nearly \$2.5 million in coupons were redeemed (Row 8a of Table I.1), representing just under 70 percent of the total value issued (Row 8b of Table I.1). Individual States experienced varying rates of redemption, ranging from under 50 percent (Vermont and Washington) to over 80 percent (Michigan and Texas). This contrasts sharply with an overall redemption rate of about 90 percent for regular WIC benefits.

The average amount of coupons issued per FMCDP participating farmer (Row 7b of Table I.1) provides a useful indicator of potential additional farm income. The overall average was approximately \$1,400 dollars as issued, but individual State averages varied considerably. The lowest amount was \$356 per participating farmer in Vermont, and the highest amount was \$3,711 per participating farmer in Connecticut. Based on the redemption figures cited previously, the average FMCDP participating farmer could receive approximately \$1,000 in FMCDP coupons during the 1989 season.

Since the 1990 reports are not yet available, some of the information in Table I.1 is necessarily outdated. For example, three States (Michigan, Pennsylvania, and Washington) switched from a \$1 coupon/check denomination in 1989 to a \$2 denomination in 1990, and at least four States (Maryland, Michigan, Pennsylvania, and Texas) planned to double the number of participating markets in 1990. Also, four States (Maryland, New York, Pennsylvania, and Vermont) lacked precise data on the number of participating farmers, so estimates were used instead. Despite its limitations, the table does provide important insights into the operations of the FMCDP in each State.

## E. EVALUATION OBJECTIVES

As a part of the legislation creating the FMCDP (PL 100-435), Congress mandated that the Secretary of Agriculture submit a report to the Congress that documents

an evaluation of the effects of the FMCDP. This report is designed to fulfill that requirement.

The FMCDP evaluation consisted of two parts: a Process Evaluation and an Impact Evaluation. The objective of the Process Evaluation was to assess FMCDP operations in each State and to determine if Federal grant requirements were being met. Four private consultants, each with extensive WIC policy or management experience at the State or Federal level, were hired to conduct the Process Evaluation.

There were two primary objectives of the Impact Evaluation. The first was to ascertain the impact of FMCDP on the women who received the coupons. Specifically, the Impact Evaluation was designed to determine whether providing the coupons affected (1) shopping at farmers' markets, and (2) the consumption of fresh fruits and vegetables by women participants. (WIC infants and children were excluded from the study because women are more certain of their own food consumption during dietary recall.) The second primary objective of the Impact Evaluation was to evaluate the impact of FMCDP on participating farmers. Specifically, the Impact Evaluation attempted to determine the effect of coupon sales on the farmers' net income and whether the project had affected the prices or volume of products offered for sale at participating farmers' markets. The U.S. Department of Agriculture Food and Nutrition Service contracted with Price Waterhouse to conduct the Impact Evaluation and to assist in the preparation of this report.



## **II. PROCESS EVALUATION**

### **A. METHODOLOGY**

Four independent consultants visited the participating FMCDP States during 1989 where they conducted interviews, observed project operations, and reviewed FMCDP records. Operations were analyzed at State agencies, local agencies, and individual farmers' markets.

The key grant requirements reviewed by the consultants included the following:

- States must provide matching funds equal to at least 30 percent of the total project costs.
- Not more than 12 percent of the total project funds for a fiscal year may be used for administration of the project.
- In any year, States shall not reduce the amount of any State and local funds that were available for the project in the preceding year.
- Only WIC women, children, and infants over 4 months of age are eligible for Federal benefits under this project.
- The value of the Federal share of the benefit received by any recipient may not be less than \$10 or more than \$20 per year.
- Coupon issuance processes must be designed to target areas with the highest concentration of eligible persons and the greatest access to farmers' markets within the broadest possible geographical area.
- Coupons may only be redeemed for fresh, nutritious unprepared foods such as raw fruits and vegetables for human consumption.
- States must have the capability to implement a system to reconcile coupons with the market at which they were redeemed and the participant to whom they were issued.
- States must submit an Annual Operations Report.

The evaluation focused on project accountability, the financial integrity of the coupon distribution and redemption systems, and the management of farmers' markets.

## **B. FINDINGS**

### **1. Project Planning and Administration**

#### **Coordination and Direction**

At the discretion of each Governor, the State projects may be directed by either of two State agencies: the Health Department or the Agricultural Department. In either case, close coordination between the two agencies is often required. The States that were most successful in fostering coordination between the two agencies employed a teamwork approach, letting each agency do what it does best. For example, State Health agencies play an important role in integrating WIC and FMCDP instrument issuance, identifying eligible FMCDP coupon recipients, and compiling and reporting project data. State Agricultural agencies play an important role in the selection, management, and promotion of farmers' markets, and in the coupon redemption process.

#### **Staffing**

States used a combination of staff dedicated full-time to FMCDP support and staff who provided FMCDP support in addition to their other duties. This varied from State to State depending on the size of the project, but rarely amounted to more than three salaried people full-time.

Most States also arranged for the donation of many hours of in-kind assistance (i.e., support services not charged against FMCDP administrative funds). In-kind contributions of staff time were observed at all levels of project administration. The amount and type of in-kind support differed in each State, and included both Agriculture and State WIC management staff as well as fiscal and ADP support services. Coupon issuance was an important function that was generally accomplished by in-kind support at local WIC agencies. In-kind support for the FMCDP was extensive during 1989, and it was generally observed that the FMCDP could not have functioned effectively without it.

#### **Data Collection and Reporting**

The level of automated reporting capability varied widely by State. The minimum reporting requirements specified by FNS include (1) the number of persons (by participant category) to whom coupons were issued for each month of operation, and (2) the value of coupons redeemed by month of operation. Some States generated FMCDP issuance records from computerized WIC master files, providing excellent controls and easy identification of participants eligible for FMCDP issuance. Others prepared manual logs at the time of issuance. Six States were able to identify the FMCDP redemption levels of individual farmers. A few States had automation efforts underway that will enhance and strengthen reporting capabilities once they are completed.

#### **Growth and Expansion**

Nearly every State underestimated the staffing and physical resources needed during the first year of FMCDP operations. This was largely due to the rapid



expansion facilitated by the introduction of Federal funding. Although nine of the States had operated a State funded WIC coupon distribution project in 1988, few properly anticipated the administrative requirements posed by a more than threefold increase in coupon recipients during 1989. Also, many of the State Agriculture representatives were unfamiliar with the management control standards common to Federal food assistance programs, requiring a certain amount of start-up time. Nevertheless, FMCDP funding is still only a small part of State and local agencies' budgets.

## **2. Funding and Financial Management**

### **Funding**

All FMCDP States must provide matching funds equal to 30 percent of the total project cost. These matching dollars may be used to fund coupon distribution for WIC participants, or to fund coupon issuance to non-WIC participants such as the elderly. Current FMCDP requirements allow for the carryover of Federal funds from one year to the next, but State contributions must always meet the 30 percent matching requirement for any given year, and may not decrease from one year to the next. During 1989 all States exceeded the requirement of a 30 percent matching contribution, partly because the requested Federal grant was reduced while planned State contributions were not reduced.

States are also required to hold FMCDP administrative expenditures to 12 percent of total expenditures. During 1989, every State was in compliance with the 12 percent administrative cost cap on total costs. Most States spent additional State funds beyond the required 30 percent match in order to help cover administrative costs. Smaller projects in particular experienced difficulty generating enough funds to pay for all required administrative functions. Because the value of in-kind support was not calculated by the States, true administrative costs are unknown.

### **Financial Management**

In general, good controls were in place to account for advanced funds, and systems were in place to recoup leftover funds. Typically, local agencies were not directly involved in reimbursing farmers for their coupons. Two States used negotiable checks in lieu of coupons, and six States advanced funds to payment intermediaries to pay authorized farmers (or markets) for FMCDP coupons they had accepted. Payment intermediaries included market managers, private banks, and various contracted organizations such as the local Chamber of Commerce.

The actual time between a farmer accepting a coupon and receiving payment was as little as one day in some States. Payment required three weeks or more in the two States that did not advance funds to a payment intermediary.

### **3. Coupon Issuance and Redemption Cycle**

#### **Coupon Design and Production**

Both coupons and checks were used by States as FMCDP instruments. Two States used negotiable checks that could be deposited at a bank. Typically, the coupons or checks were designed and printed by the administering State agency. Some States used check systems that were integrated with automated WIC check production systems.

Among other things, FMCDP coupons or checks were required to have a unique sequential serial number, the denomination, and the expiration date. Most States met these FNS coupon design requirements. Although some States required participant identification and signatures (standard control features of WIC food instruments), the informal nature of farmers' markets makes these control features cumbersome. As a result, some coupon designs had greater potential for illegal trading and trafficking. The dilemma facing most States is the tradeoff between accountability and convenience. The measures that increase accountability and help guard against fraud (such as counter-signatures or presentation of WIC identification) are precisely those features that make coupon redemption a less convenient process.

#### **Coupon Distribution and Redemption**

Coupons were generally distributed by local WIC agencies. In many States, the FMCDP issuance system was well integrated with the existing WIC coupon issuance system. Three States targeted benefits to pregnant and breastfeeding women and six States issued benefits to all categories of eligible WIC participants. Two States targeted issuance geographically to large populations of high risk WIC participants.

All States met the grant requirements that all coupons paid for with Federal funds be distributed only to WIC participants (over 4 months of age), and in increments no less than \$10 nor more than \$20 per person. Three States used a first-come, first-served issuance procedure whereby clinic scheduling was the primary determinant of coupon issuance. This proved to be a relatively easy method of issuance, but one which ignored differences in nutritional risk among the eligible population. Also, in some cases not all eligible participants within a clinic received coupons, resulting in distribution inequities.

Two States used experience with WIC redemption rates as a guide for the number of coupons they would issue. For example, if a State was prepared to reimburse \$90,000 worth of coupons, and their WIC redemption rate was 90 percent, then that State would issue \$100,000 worth of coupons. Other States took a more conservative approach to determining the number of coupons to issue. Two States based coupon issuance on an estimated 100 percent redemption rate in order to guarantee sufficient funding throughout the growing season no matter how many coupons were ultimately redeemed.



The greatest operational problem in many States was coupon inventory control, especially where coupons changed hands (e.g., when they passed from the printer to the administering agency to the WIC computer facility). Controls were often lax in identifying the number of coupons being transferred. For instance, in one State no one realized that the number of coupons issued by WIC clinics was less than the total number of coupons delivered by the printer to the WIC computer facility. Thousands of unissued coupons remained at the WIC computer facility, unknown to the administering FMCDP agency until brought to their attention by one of the private consultants performing the Process Evaluation.

Only two States had plans and procedures in place to conduct one-to-one reconciliation of coupons, a standard procedure for WIC food instruments. One-to-one reconciliation is a procedure whereby the final disposition of all issued coupons is identified as either validly redeemed, lost or stolen, expired, duplicated, void, or not matching issuance records. In addition, one-to-one reconciliation involves the identification of the individual to whom each coupon was issued, as well as the market, if any, where it was redeemed. FMCDP States were only required to demonstrate the capability to perform one-to-one reconciliation. While all States proved themselves capable, most lacked the administrative funds or data processing resources needed to fully implement reconciliation. This was especially true in the case of States that operated small FMCD projects.

One key task of the Process Evaluation was to trace a random sample of about twenty paid coupons from each FMCDP State through distribution and redemption. The purpose of this activity was to provide the reviewers with a hands on overview of the States' issuance and redemption systems. Most of the sampled coupons were successfully traced back to a properly documented record of issuance in the file of an eligible WIC participant. There was no evidence of impropriety.

#### **4. Farmers' Market Operations**

##### Overview of Farmers' Market Operations

The FMCDP guidelines allowed States great latitude in defining farmers' markets and in establishing and enforcing rules of operation. In the Request for Grant Application, FNS defined a farmers' market as "an association of local farmers who assemble for the purpose of selling their produce directly to consumers."

Federal grant requirements restricted the items that may be purchased with FMCDP coupons to fresh, nutritious, and unprepared foods. Five States restricted eligible foods still further to include only State-grown or locally-grown products. States were also required to provide FMCDP training to farmers and market managers and to initiate market and/or farmer agreements. Most of the time,

efforts were made to select established markets within the normal reach of WIC participants.

### Market Viability

In general, most FMCDP markets visited during the Process Evaluation were "viable" in that they were not dependent on the FMCDP for their existence. These viable markets had a community history and good support from non-FMCDP sales. Most had a variety of good quality produce for sale, and most sold produce that was locally-grown according to slightly differing, but practical, State definitions of "local." Also, most markets had a sufficient number of FMCDP sellers to create a competitive environment for FMCDP coupons.

The availability of viable farmers' markets will likely continue to be an issue in the operation of farmers' market coupon projects. Markets that are not viable without the FMCDP can be created to accomplish food distribution to WIC participants, but this may do little to promote the long-term sustainability of farmers' markets. One State encouraged the establishment of some satellite markets at WIC clinic sites in order to improve market accessibility. Because of the short, seasonal life span of satellite markets, they generally attracted farmers already involved in other retail activities. The added logistical difficulty of hiring extra staff or arranging for another truck to serve the satellite discouraged some farmers from participating, thus reducing competitive pressures for those who did participate. Moreover, since the satellite markets had no viability other than as conduits for FMCDP coupons, they did little to promote the sustained patronage of farmers' markets.

At least two States authorized the participation of retail stands in urban areas that would not otherwise be served by an FMCDP qualified market. While these stands provided an accessible coupon outlet for many WIC participants, there was often less competition resulting in the potential for higher prices.

### Market Management and Oversight

Market managers played an important role in the day-to-day management of the FMCDP. In many States the managers receive coupons and reimburse farmers. The strongest markets appeared to be those where the market manager had an active role in farmer training, compliance monitoring, reimbursing farmers, and redeeming coupons. Farmers at these markets were more likely to have a sound understanding of the project, and to comply strictly with project guidelines. In contrast, where the market manager's role in the FMCDP was limited, there was usually greater misunderstanding among participating farmers about FMCDP operations. FMCDP participation was typically lower at markets with only nominal market manager involvement.

The rules as spelled out in written farmer participation agreements were fairly simple and seemed to be well understood, but oversight was still vital to FMCDP operational integrity. A rule infraction, such as retailing non-local produce, could unfairly pull market-share away from farmers who comply with the rules.



Monitoring techniques varied widely from State to State. All States met the grant requirement to visit every authorized market at least once during operations, and peer monitoring was common and effective in most market settings. Peer monitoring at the marketplace is a system in which farmers watch what their neighbors are doing, and make complaints to the market manager about suspected infractions in an effort to prevent competitors from getting an unfair advantage.

## **5. Other Findings**

### **Integration with the Food Stamp Program**

Markets visited in some FMCDP States during the process evaluation indicated that they also accepted food stamps. In particular, one State used the FMCDP as a means to increase the number of markets authorized to accept food stamps by sending outreach materials to market managers, and by establishing a streamlined food stamp application and approval process for FMCDP participating farmers. Since many coupon recipients may also be eligible to receive food stamps, there is an incentive for them to shop at places where food stamps are accepted. Persuading additional farmers' markets to accept food stamps was seen by some States as one way to induce coupon recipients to continue shopping at farmers' markets.

### **Nutrition Education**

Some States developed FMCDP-related nutrition education programs at the WIC clinics where recipients were instructed on the nutritional benefits of fresh fruits and vegetables and provided tips on how to buy and prepare them. Nutrition education programs specific to the FMCDP were highly recommended by FNS, but not required of each State.

## **C. CONCLUSIONS**

The process review found that all the demonstration projects were operating successfully in 1989, and were meeting the Federal grant requirements. Rapid expansion played a role in every State, requiring special adjustment and effort to accommodate the enlarged caseloads. Nearly every State underestimated the staffing and physical resources needed during this first year of FMCDP operations, although most States actually operated slightly smaller projects and authorized fewer markets than originally planned. All ten States experienced strong support for the FMCDP, from the Governor down to the local agencies and individual participants.

### III. IMPACT OF FMCDP ON WIC WOMEN

#### A. INTRODUCTION

The evaluation of the impact of the FMCDP on women is based on data from completed telephone interviews with a random sample of 2,725 women participating in the WIC program in six States (Iowa, Massachusetts, Pennsylvania, Texas, Vermont, and Washington), conducted in August and September 1990. Women were sampled at random from two groups -- (1) women who had received or were scheduled to receive coupons in 1990, and (2) women who had not yet received and were not scheduled to receive coupons in 1990. The target sample size for the first group of women was 1,500, and the target sample size for the second group of women was 1,200.

In four of the States, the women to be surveyed were selected at random from throughout the State. In Texas and Washington the sample was limited to a few WIC clinics due to the unavailability of statewide data. Recipients were selected from lists provided by a few clinics participating in the FMCDP and non-recipients were selected from an equal number of clinics not participating in the FMCDP.

At the conclusion of the survey, the respondents were assigned to one of three groups based on their response to two questions:

- "Did you receive WIC Farmers' Market Coupons or Checks this year for buying fresh fruits and vegetables at farmers' markets?"
- "Prior to this year, have you ever received WIC Farmers' Market Coupons or Checks?"

The three respondent groups are: 1,503 women who received FMCDP coupons during the Summer of 1990 ("recipients"), 96 women who did not receive coupons in 1990 but did receive them in a prior year ("prior recipients"), and 1,126 women who never received FMCDP coupons ("non-recipients").

All women were asked about their fruit and vegetable consumption and their use of farmers' markets. Comparisons of the responses to these questions between the groups are used to evaluate the effect of the FMCDP on women. FMCDP recipients were also asked about their use of FMCDP coupons and their assessment of the FMCDP project. The responses to these questions are used to assess the effectiveness of project administration.

The recipient group in every comparison includes all WIC women who received coupons, even those who did not spend any coupons. This was necessary in order to avoid bias, since those women who spent coupons may have been more motivated to consume fruits and vegetables than those who did not spend coupons.



Most of the analysis of the impact of the FMCDP is based on direct comparisons between the FMCDP recipient, prior recipient, and non-recipient groups. This type of comparative analysis assumes that any differences between the groups (e.g., differences in average consumption of fresh fruits and vegetables) are attributable to the FMCDP. However, if the groups differ significantly in other respects (e.g., age, education, race, or geographic location), the results of the comparative analysis may be misleading. For example, if younger women tend to consume more fruits and vegetables than older women, and coupon recipients are younger than non-recipients, then greater consumption levels among coupon recipients could be attributed to the difference in ages, rather than the issuance of coupons.

The only way to ensure that the FMCDP recipient, prior recipient, and non-recipient groups are similar in all respects is to conduct a controlled experiment. This was not possible. However, it is clear that the groups are very similar. All groups are from the same six States. All groups are WIC participants, and are therefore pregnant, postpartum, or breastfeeding women with low income who are nutritionally at-risk. Finally, the survey collected data on other characteristics about the women. These characteristics are summarized in Table III.1. That table shows that recipients, prior recipients, and non-recipients are generally similar in terms of age, family size, employment status, and education. The most notable difference between the groups is in terms of race. Non-recipients were somewhat more likely to be white than recipients (73 percent versus 61 percent).

One factor that was not controlled through sampling was the geographic location of recipients and non-recipients within each State. In many cases, coupon recipients were selected to receive coupons based on the proximity of their WIC clinic to an existing FMCDP farmers' market. In total, non-recipients may not have the same access to farmers' markets as coupon recipients. Since the sampled non-recipients are not necessarily from the same locations as sampled recipients, the possibility exists that sampled non-recipients may not have had the same access to farmers' markets as sampled coupon recipients.

The sections that follow summarize the distribution and use of farmers' market coupons, the effect of the FMCDP on consumption of fresh fruits and vegetables, and the effect of the FMCDP on patronage of farmers' markets.

## **B. DISTRIBUTION AND USE OF FARMERS' MARKET COUPONS**

The distribution and use of farmers' market coupons among the group of coupon recipients is summarized in Table III.2. States typically distribute coupons during the summer months, with the heaviest concentration in July and August. Some States, such as Texas, distribute coupons in multiple installments, but most distribute them all at once. Ninety-three percent of the coupon recipients surveyed last received coupons during the months of June, July, or August.

**TABLE III.1**  
**DESCRIPTION OF THE SAMPLE**

WIC WOMEN	1990 Coupon Recipients	1990 Non-Recipients	
		Prior Coupon Recipients	Non-Recipients
<b>Completed Interviews</b> Number	1,503	96	1,126
<b>Age in Years</b> Average	24.9	25.9	24.8
<b>Family Size</b> Average	4.3	4.5	4.3
<b>Race</b>			
White	914 61%**	66 69%	819 73%
Black	314 21%**	17 18%	153 14%
Hispanic	220 15%**	8 8%	123 11%
Asian/Pacific Islander	31 2%	3 3%	14 1%
Other	19 1%	2 2%	11 1%
<b>Employment</b>			
Over 35 hours per week	154 10%	10 10%	122 11%
20-35 hours per week	105 7%	6 6%	70 6%
1-20 hours per week	77 5%	3 3%	69 6%
Not employed	1,163 77%	77 80%	865 77%
<b>Education</b>			
Below high school	94 6%	8 8%	61 5%
Some high school	388 26%	24 25%	263 23%
High school graduate	625 42%	47 49%	510 45%
Some college	289 19%	11 11%	239 21%
College graduate	102 7%**	6 6%	50 4%

\*\*Recipient and non-recipient groups are different: result is statistically significant at the .01 level using a two tailed t-test.



TABLE III.2

## USE OF FARMERS' MARKET COUPONS BY RECIPIENTS

WIC WOMEN		1990 Coupon Recipients	
<b>Completed Interviews</b>			
Number		1,503	
<b>Month Coupons Last Received</b>			
May		46	3%
June		292	19%
July		594	40%
August		503	34%
September		18	1%
Don't know		44	3%
<b>Amount of Coupons Received and Spent to Date<sup>†</sup></b>			
Average received for the women		\$14.96	
Average received for their children		\$3.46	
Average spent		\$11.01	
<b>Individual Coupon Expenditures<sup>†</sup></b>			
No coupons spent yet		379	25%
Some coupons spent		518	34%
All coupons spent		528	35%
Don't know		78	5%
<b>Planned Expenditures of those with Coupons Remaining</b>			
Yes, plan to spend some more		810	90%
No, don't plan to spend any more		45	5%
Don't know		22	2%
No response		20	2%

<sup>†</sup>at the time interviews were conducted, in August and September 1990.

The average amount of coupons received by women in the sample was approximately \$15 for themselves. Most of these women received either \$10 (38 percent) or \$20 (40 percent). Due to the phased distribution employed by some States, other amounts were possible.

Over 20 percent of the women surveyed also reported receiving coupons on behalf of their children, averaging approximately \$17.50 per household. The remainder either did not receive coupons for their children (74%) or were not sure (6%). Thus, the average reported amount for all WIC women interviewed was \$3.50 per household for their children. This includes both women who received coupons for their children and women who did not. Therefore, it is less than the \$10 minimum benefit per recipient.

This total in coupons received by WIC women in the sample was approximately \$18.50 per household (\$15 for themselves and \$3.50 for their children). Of this, the average respondent had spent \$11 by the time she was interviewed. Thus, approximately 60 percent of the coupons received had been redeemed as of the time the survey was conducted (late August through early September). This result is consistent with State Reports on FMCDP Operations for 1989 (Row 8b of Table I.1), which found that 69 percent of the coupons issued by all ten States were redeemed by the end of the season (late October). This contrasts sharply with overall redemption rates of about 90 percent for regular WIC benefits.

Only 35 percent of the recipients had spent all of the coupons they had received. One-quarter of the recipients had yet to spend any of the coupons, and 34 percent had spent some of the coupons. This low redemption rate was in part due to the fact that the growing season had not yet ended, and many recipients had not yet had time to spend all their coupons. Figure III.1 displays coupon expenditures by State of all survey respondents who received coupons during 1990. There was considerable variation in usage rates by State reflecting, in part, differences in the way each State handled coupon distribution. The proportion of recipients who had yet to spend any coupons was highest in Massachusetts, where many of those interviewed had just recently received coupons. In contrast, because most recipients in Washington received coupons in June, only 16 percent of the Washington recipients had not yet spent any coupons.

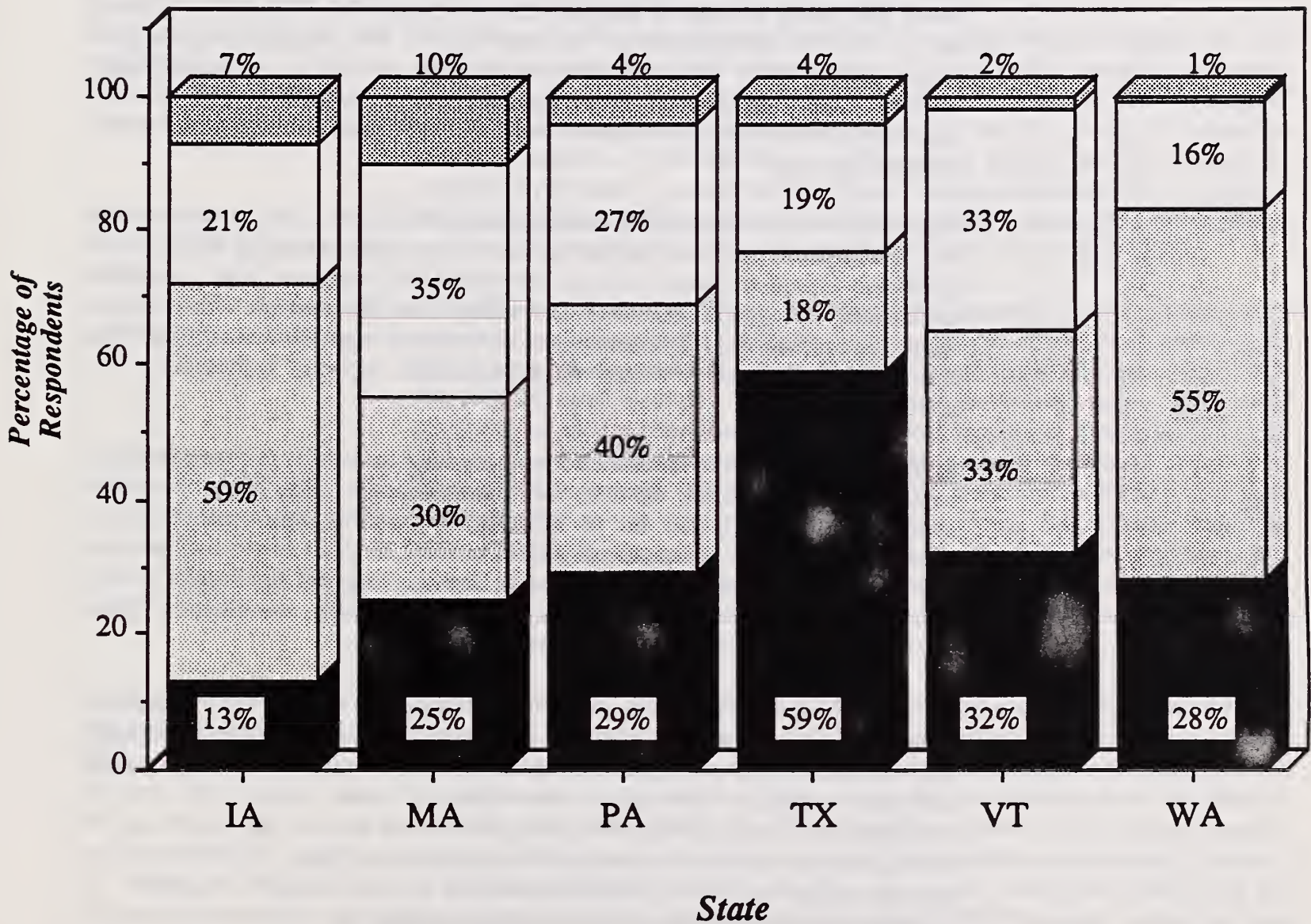
Among those recipients who had yet to spend all of their coupons, 92 percent indicated that they planned to spend additional coupons before the season ended. Those who had already spent some of their coupons were more likely to say they would spend additional coupons than those who had yet to spend any of their coupons (96 percent versus 87 percent). Only five percent of recipients with remaining coupons said they did not plan to spend additional coupons. When asked to explain why, the reason most commonly given was that the market was inconvenient (e.g., hard to get to, "not open when I want to shop", etc.).







**FIGURE III.1**

**COUPON EXPENDITURE BY STATE**  
(As of Time of Interview<sup>†</sup>)

**Question Asked:** Of the Farmers' Market Coupons that you received for yourself and your children, how much have you spent?



-  Don't Know
-  Spent none of the coupons
-  Spent some of the coupons
-  Spent all of the Coupons

<sup>†</sup> Interviews were conducted in August and September 1990, prior to the end of the growing season.

### C. EFFECT OF FMCDP ON CONSUMPTION

Dietary recall played an important part in the women's survey. Women were asked to report the types and quantities of fruits and vegetables (including fruit and vegetable juices) consumed yesterday. The respondents were also asked to report how many servings of specific fruits and vegetables they eat in a typical week. Each woman was advised that a serving of fruit was one-half cup or a regular size piece of fruit, and that a serving of vegetables was one-half cup cooked or one full cup raw. A serving of juice was defined as one-half cup. Interviewers were instructed to ignore partial servings when recording the answers to these questions.

The women were accustomed to dietary recall questions as a part of their regular WIC participation, and most seemed to have an easy time answering dietary recall questions. In some cases, however, the individual responses were somewhat implausible, raising questions as to the validity of certain answers. For example, the average reported weekly consumption of fruits and vegetables was typically less than half of what was obtained when yesterday's reported consumption was multiplied by seven.

Several respondents who reported inconsistent daily and weekly consumption were contacted again to identify the reasons for this difference. Most often, the weekly numbers were understated due to difficulty in converting daily consumption to weekly consumption. Respondents tended to think in terms of servings per day, and many did not realize that, for example, three servings per day implies twenty-one servings per week. Therefore, daily, rather than weekly, consumption figures were chosen for the comparative analysis.

A few of the respondents who were contacted because of inconsistent daily and weekly consumption said that they had overstated their daily consumption because they reported partial servings of fruit in a fruit salad or vegetables in a green salad as whole servings. To reduce the impact of these errors, the reported consumption for all individuals reporting more than ten servings of fruit or ten servings of vegetables was adjusted to be equal to ten servings. This affected four percent of the recipient and three percent of the non-recipient responses. In addition to reducing the impact of erroneous reporting, the adjustment reduces the impact of a few individuals with very high consumption on the overall average consumption. This seems appropriate because if a variety of nutritious fruits and vegetables are consumed, the Recommended Daily Allowances for the major nutrients found in those foods (i.e., vitamins A and C) should be met and possibly exceeded. In other words, a woman who consumes more than ten servings of fruit in a day has almost certainly exceeded the minimum daily requirements for the key nutrients found in fresh fruit.



## 1. Overall Effect of FMCDP on Consumption

Each respondent was asked several questions regarding her fruit and vegetable consumption and how it had changed over time. The results of these questions are provided in Table III.3.

### Average Daily Consumption

The average daily consumption of both fruit and vegetables was higher for 1990 coupon recipients than 1990 non-recipients in the sample. Specifically, coupon recipients consumed an average of 3.6 servings of fruit and 4.1 servings of vegetables daily, as compared to 3.4 servings of fruit and 3.9 servings of vegetables for non-recipients. This difference of 0.2 servings of fruit and 0.2 servings of vegetables represents a statistically significant difference between the two groups. This suggests that daily consumption of fruit and daily consumption of vegetables was about 5 percent higher among coupon recipients than non-recipients.

The daily fruit and vegetable consumption levels reported by respondents were extremely high compared to amounts reported in the USDA Nationwide Food Consumption Survey 1977-78 ("Food Intakes: Individuals in 48 States, Year 1977-78", NFCS Report No. I-1). That study reported the average weight in grams of fruits and vegetables consumed daily by American females of various incomes and age groups at various times of the year. While a direct conversion of grams to servings is not possible, it is clear that the NFCS consumption levels are at most one-half of what was reported by WIC women during the Impact Evaluation survey. This difference may be due to the fact that the WIC survey population is unique in many ways. It may be that pregnant or breastfeeding women consume more fruits and vegetables, particularly those who receive nutrition education and a supplemental food package.

### Change in Consumption Since Last Year

Respondents were also asked to compare their fruit and vegetable consumption this year to that of last year. A significant proportion of the surveyed coupon recipients (48 percent) reported an increase in fruit consumption this year over last year. In contrast, 43 percent of the non-recipients surveyed reported an increase in fruit consumption. Similarly, while a significant portion of the surveyed coupon recipients (43 percent) reported an increase in vegetable consumption, 37 percent of the non-recipients surveyed made the same claim. Since these differences are statistically significant, they suggest that the FMCDP increases both fruit and vegetable consumption during the year of participation. However, these results also suggest that sizeable numbers of non-recipients are increasing their fruit and vegetable consumption, albeit at a slower rate.

### Long-Term Effect

To gain insights into the long-term effect of FMCDP participation on fruit and vegetable consumption, the consumption patterns of prior coupon recipients who had not received coupons during 1990 were examined. The average reported number of servings consumed by prior recipients (3.6 servings of fruits and 4.1

**TABLE III.3**  
**EFFECT OF THE FMCDP ON CONSUMPTION**

WIC WOMEN	1990 Coupon Recipients	1990 Non-Recipients	
		Prior Coupon Recipients	Non- Recipients
<b>Completed Interviews</b>			
Number	1,503	96	1,126
<b>Daily Fruit &amp; Vegetable Consumption<sup>†</sup></b>			
Average servings <sup>‡</sup> of fruit	3.6*	3.6	3.4
Average servings <sup>‡</sup> of vegetables	4.1*	4.1	3.9
<b>Change in Fruit Consumption (This Year Versus Last Year)</b>			
Increased	728 48%**	39 41%	488 43%
Stayed the same	625 42%	43 45%	487 43%
Decreased	144 10%	13 14%	148 13%
<b>Change in Vegetable Consumption (This Year Versus Last Year)</b>			
Increased	648 43%**	30 32%	411 37%
Stayed the same	747 50%	58 60%	619 55%
Decreased	105 7%	7 7%	94 8%

<sup>†</sup>Daily consumption figures were adjusted downward to ten servings for respondents who reported more than ten servings of fruit or ten servings of vegetables in one day. For a more detailed explanation see page 22.

<sup>‡</sup>A serving of fruit is one-half cup or a regular size piece of fruit. A serving of vegetables is one-half cup cooked or one full cup raw. A serving of juice is one-half cup.

\*Greater than non-recipient: result is statistically significant at the .05 level using a one-tailed t-test.

\*\*Greater than non-recipient: result is statistically significant at the .01 level using a one-tailed t-test.



servings of vegetables) was identical to that of current recipients. One possible explanation is that the changes in consumption of fruits and vegetables resulting from participation in the FMCDP endure even after the women stop receiving coupons. However, differences in consumption between the prior recipient and non-recipient groups are not statistically significant, probably due to the small sample size involved (only 96 prior recipients).

Consistent with the above finding, prior participants also more often reported that their fruit and vegetable consumption this year was the same as that of last year (45 percent for fruits and 60 percent for vegetables).

## **2. Effect of Information Provided at WIC Clinics**

All WIC participants get some form of nutrition education as a regular part of the WIC program. In addition, some of the FMCDP States supplement this instruction with customized nutrition education programs directed specifically toward FMCDP coupon recipients. These programs vary greatly in scope and content, but all are geared toward providing information on how to prepare and eat fresh fruits and vegetables. Typically, this information is provided from a videotape or booklet and/or counseling from WIC clinic staff members. Table III.4 summarizes the number of coupon recipients and non-recipients who reported receiving information from a WIC clinic on how to prepare and eat fresh fruits and vegetables, and how receiving this information was related to fruit and vegetable consumption. Prior coupon recipients are not included in Table III.4 because there are too few prior recipients to make meaningful breakdowns by information received.

About 70 percent of the 1990 coupon recipients, as compared to 60 percent of the non-recipients, indicated that they had received information on how to prepare or eat fresh fruits and vegetables at the WIC clinic. The average fruit and vegetable consumption for women receiving information is about 0.4 servings per day higher than that of women who did not receive information, both for the coupon recipient group (0.44 servings higher) and the non-recipient group (0.36 servings higher). Note that these differences in consumption are similar in magnitude to the differences between coupon recipients and non-recipients, suggesting that providing information on fruit and vegetable preparation and nutrition is just as important as providing coupons. In summary, both nutrition education and FMCDP coupons appear to increase consumption of fruits and vegetables by 5 to 6 percent. These results are not conclusive, however. It may be that health-conscious women are more likely to remember or report nutrition education, introducing the possibility of bias due to selective recall.



TABLE III.4

**EFFECT OF NUTRITIONAL INFORMATION ON CONSUMPTION<sup>†</sup>**

<b>WIC WOMEN</b>	<b>Current Recipients</b>	<b>Non-Recipients</b>	<b>Difference (Current vs. Non-)</b>
<b>Received Nutritional Information</b>			
Number interviewed	1,046	672	
Daily servings <sup>‡</sup> of fruits and vegetables	7.79	7.37	0.42*
<b>Did Not Receive Information</b>			
Number interviewed	457	454	
Daily servings <sup>‡</sup> of fruits and vegetables	7.35	7.01	0.34
<b>Difference (Received vs. Not)</b>			
Daily servings <sup>‡</sup> of fruits and vegetables	0.44*	0.36	N/A

<sup>†</sup>Daily consumption figures were adjusted downward to ten servings for respondents who reported more than ten servings of fruit or ten servings of vegetables in one day. For a more detailed explanation see page 22.

<sup>‡</sup>A serving of fruit is one-half cup or a regular size piece of fruit. A serving of vegetables is one-half cup cooked or one full cup raw. A serving of juice is one-half cup.

\*Difference is statistically significant at the .05 level using a one-tailed t-test.

There is not a significant interaction effect of receiving coupons and receiving nutritional information. That is, receiving both coupons and nutrition education does not increase consumption beyond the additive effect of both factors. Results of an analysis of variance indicated that receiving coupons and receiving nutritional information each had a statistically significant effect on consumption, but that the interaction of the two factors was not statistically significant at a 95 percent confidence level.

#### D. EFFECT OF FMCDP ON PATRONAGE OF FARMERS' MARKETS

All respondents were asked how often they shopped at farmers' markets and how much they spent at the market. Table III.5 summarizes the answers to these questions.

Only 31 percent of the non-recipients reported that they shop at farmers' markets, as compared to 40 percent of the prior recipients and 60 percent of the current recipients. This suggests that coupon issuance dramatically increased the number of WIC women shopping at farmers' markets this year, but that this effect may taper off somewhat in subsequent years. It is not certain, however, that increased market patronage is a direct consequence of coupon issuance. The way WIC women were selected to receive coupons may have reflected a bias toward women who live near and shop at farmers' markets. Both current and prior recipients may live in areas that are more accessible to an FMCDP farmers' market, and for that reason were selected for participation in the FMCDP. Sampled non-recipients, therefore, may not have had equal access to farmers' markets as coupon recipients since they were not necessarily sampled from the same geographic region within their State.

The frequency of farmers' market visits (among those who shop at farmers' markets) is fairly similar for current recipients, prior recipients, and non-recipients. There are some notable differences, however. Current coupon recipients were more likely than non-recipients to report visiting farmers' markets less than once a month. This is probably due to an influx of "one-time" shoppers who go to the market solely to spend coupons. Also, prior recipients were more likely to report shopping at farmers' markets once per week. This may indicate an increase in frequency of visits over time among those who continue to shop at farmers' markets after they stop receiving coupons. These results are not statistically significant, however, and are dependent on the respondent's ability to accurately recall the frequency of market visits.

The average amount spent per market visit (including farmers' market coupons, cash, checks, food stamps, etc.) was somewhat higher among non-recipients



TABLE III.5

## COMPARATIVE EFFECT OF FMCDP ON MARKET PATRONAGE

WIC WOMEN	1990 Coupon Recipients	1990 Non-Recipients	
		Prior Coupon Recipients	Non- Recipients
<b>Completed Interviews</b>			
Number	1,503	96	1,126
<b>Patronage of Farmers' Markets</b>			
Shop at farmers' markets	898 60%	38 40%	353 31%
Don't shop at farmers' markets	601 40%	58 60%	773 69%
<b>Frequency of Farmers' Market Visits (of those who shop at farmer's markets)</b>			
More than once per week	67 8%	5 13%	46 13%
Once per week	231 26%	12 32%	90 26%
Once every two weeks	265 30%	8 21%	96 27%
Once every four weeks	145 16%	7 18%	63 18%
Less than once every four weeks	178 20%	5 13%	54 15%
Don't know	11 1%	1 3%	4 1%
<b>Farmers' Market Expenditures<sup>†</sup> (of those who shop at farmer's markets)</b>			
Average spent per visit	\$12.94	\$17.69	\$13.63

<sup>†</sup>Includes farmers' market coupons, cash, checks, food stamps, etc.



(\$13.63) than among current recipients (\$12.94), and highest among prior recipients (\$17.69). There is not a statistically significant difference between any two of the three estimates, however, due to variability in the data. The similarity between the amount spent by non-recipients and by recipients may be indicative of a substitution effect. Under perfect substitution recipients do not change their purchasing behavior, they simply use coupons in place of (rather than in addition to) cash expenditures.

Coupon recipients were also asked a series of questions about how, or if, their patronage of farmers' markets had changed after receiving FMCDP coupons. The results of these questions, summarized in Table III.6, confirm the finding from Table III.5 that the FMCDP increases patronage of farmers markets.

Only 39 percent of FMCDP recipients reported that they shopped at farmers' markets before receiving coupons (Table III.5 shows that 60 percent now shop at the markets). Note that this is similar to the patronage rate for prior recipients (40 percent) and greater than the patronage rate for non-recipients (31 percent) reported in Table III.5. These results suggest that the sampled coupon recipients may have been more likely to shop at farmers' markets in absence of the FMCDP than the sampled non-recipients. Forty-eight percent of the coupon recipients who never shopped at farmers' markets before receiving coupons reported that they now shop at farmers' markets. Forty percent of the coupon recipients who shopped at farmers' markets before reported that the frequency of visits to farmers' markets had increased since receiving coupons.

There is also strong indication that those receiving coupons in 1990 will continue to shop at farmers' markets in subsequent years. Fifty percent said they would definitely continue shopping at farmers' markets after they stop receiving coupons, and an additional 30 percent said they probably would do so. Only 4 percent said they would definitely not continue to shop at the markets.

#### **E. OPINIONS ABOUT FARMERS' MARKETS**

Market patronage is largely shaped by shopping preferences. A market's location, accessibility, hours of operation, prices, quality, and variety of products can all serve as inducements (or deterrents) to patronage. WIC farmers' market coupons are one type of inducement which encourages patronage. However, if patronage is to continue beyond the year coupons are received (as seen from Table III.5), there must be other inducements as well. The preferences of coupon recipients and non-recipients can determine what inducements are likely to retain coupon recipients as farmers' market patrons.

TABLE III.6

## EFFECT OF FMCDP ON MARKET PATRONAGE OVER TIME

WIC WOMEN	1990 Coupon Recipients	
<b>Completed Interviews</b>		
Number	1,503	
<b>Prior Patronage of Farmers' Markets</b>		
Shopped at farmers' markets before	581	39%
Never shopped at farmers' markets before	883	59%
Don't know	10	1%
<b>Current Patronage of Farmers' Markets (of those who never shopped before)</b>		
Shop at farmers' markets now	420	48%
Don't shop at farmers' markets now	460	52%
Don't know	3	<1%
<b>Change in Frequency of Farmers' Market Visits Since Receiving Coupons (of those who shopped before)</b>		
Increased number of visits	232	40%
Same number of visits	285	49%
Decreased number of visits	26	5%
Don't know	38	7%
<b>Intent to Continue Shopping at Farmers' Markets if Coupon Distribution Ceases</b>		
Definitely yes	734	50%
Probably yes	442	30%
Probably no	161	11%
Definitely no	65	4%
Don't know	70	5%



Table III.7 summarizes market accessibility as it is perceived by 1990 coupon recipients, prior recipients, and non-recipients. In each case, the responses only represent those who shop at farmers' markets.

Statistically, the most significant difference was in the way women travelled to the farmers' market. Most of the women surveyed drove to the farmers' market. However, a greater proportion of coupon recipients than non-recipients walk to the farmers' market (15% versus 10%), or take public transportation (17% versus 9%). Likewise, a greater proportion of coupon recipients than non-recipients believe the farmers' market location is less convenient than the grocery store where they shop (51% versus 43%), and that its hours are less convenient (59% versus 53%). Yet, the high rate of use of farmers' markets among the recipients suggests that WIC farmers' market coupons are a sufficient inducement to cause some recipients to overcome the inconvenience of getting to a participating market.

Price and product preferences are summarized in Table III.8. The majority of each sample group believed that prices were lower at the farmers' market (58 percent of coupon recipients, 66 percent of the prior recipients, and 63 percent of the non-recipients). However, coupon recipients, more often than non-recipients, reported that prices at the farmers' market were higher than those at the grocery store where they shopped (13 percent of the recipients versus 8 percent of the prior recipients and 9 percent of the non-recipients). This suggests that some of these women may stop shopping at the farmers' market when the inducement of coupons ceases.

The majority in each group preferred the selection of produce at the farmers' market to that of the grocery store. Of those preferring the grocery store selection, the majority were current coupon recipients (18 percent of the current recipients preferred the grocery store, as compared to 11 percent of the prior recipients and 10 percent of the non-recipients), implying that many were only shopping at farmers' markets because of the inducement of coupons. This shift in selection preference was found to be statistically significant.

#### F. OPINIONS ABOUT THE FMCDP

All coupon recipients were asked about their opinions regarding FMCDP. The responses are summarized in Table III.9.



TABLE III.7

## ACCESS TO FARMERS' MARKETS

WIC WOMEN WHO SHOP AT FARMERS' MARKETS	1990 Coupon Recipients		1990 Non-Recipients	
			Prior Coupon Recipients	Non-Recipients
<b>Completed Interviews</b>				
Number	898		38	353
<b>Modes of Transportation to Farmers' Market (Multiple Response Possible)</b>				
Walk	136	15%*	5 13%	36 10%
Drive	646	72%**	30 79%	294 83%
Public transit	149	17%**	8 21%	32 9%
Ride with a friend or relative	600	67%**	29 76%	264 75%
<b>Convenience of Farmers' Market Location versus Grocery Store</b>				
Market is much more convenient	87	10%	6 16%	40 11%
Market is somewhat more convenient	68	8%	1 3%	29 8%
Market is equally convenient	274	31%	13 34%	128 36%
Market is somewhat less convenient	261	29%	11 29%	93 26%
Market is much less convenient	199	22%*	6 16%	60 17%
Don't know	9	1%	1 3%	3 1%
<b>Convenience of Farmers' Market Hours versus Grocery Store Hours</b>				
Market is much more convenient	47	5%	5 13%	19 5%
Market is somewhat more convenient	63	7%	2 5%	21 6%
Market is equally convenient	244	27%*	10 26%	120 34%
Market is somewhat less convenient	286	32%	13 34%	111 31%
Market is much less convenient	240	27%	7 18%	78 22%
Don't know	17	2%	1 3%	4 1%

\*Recipient and non-recipient groups are different: result is statistically significant at the .05 level using a two tailed t-test.

\*\*Recipient and non-recipient groups are different: result is statistically significant at the .01 level using a two tailed t-test.

TABLE III.8

## PRICE AND PRODUCT COMPARISONS

WIC WOMEN WHO SHOP AT FARMERS' MARKETS	1990 Coupon Recipients	1990 Non-Recipients	
		Prior Coupon Recipients	Non-Recipients
<b>Completed Interviews</b>			
Number	898	38	353
<b>Farmers' Markets Prices versus Grocery Store Prices</b>			
Market prices higher	120 13%*	3 8%	33 9%
Prices about the same	205 23%	9 24%	84 24%
Market prices lower	522 58%	25 66%	221 63%
Don't know	49 6%	1 3%	15 4%
<b>Farmers' Market Produce Selection versus Grocery Store Selection</b>			
Prefer market selection	620 69%**	30 79%	289 82%
No preference	93 10%*	3 8%	22 6%
Prefer grocery store selection	164 18%**	4 11%	37 10%
Don't know	20 2%	1 3%	5 1%

\*Recipient and non-recipient groups are different: result is statistically significant at the .05 level using a two tailed t-test.

\*\*Recipient and non-recipient groups are different: result is statistically significant at the .01 level using a two tailed t-test.



**TABLE III.9**  
**OPINIONS ABOUT THE PROJECT**

1990 COUPON RECIPIENTS	Recipients who spent coupons	
<b>Completed Interviews</b> Number	1,476	
<b>Benefits Perceived</b>		
Yes	1,170	80%
No	91	6%
Don't know	215	14%
<b>Benefits Identified (Multiple Response Possible)</b>		
More food	604	40%
Better nutrition; better food	562	37%
Helps financially	123	8%
<b>Problems Perceived</b>		
Yes	245	17%
No	1,172	79%
Don't know	56	4%
<b>Problems Identified (Multiple Response Possible)</b>		
Farmers' markets are not convenient	98	7%
Coupons are difficult to use	38	3%
Not enough coupons	29	2%
Not enough participating farmers or markets	25	2%
Poor selection/quality at markets	25	2%
<b>Overall Satisfaction</b>		
Very satisfied	977	66%
Somewhat satisfied	384	26%
Somewhat dissatisfied	32	2%
Very dissatisfied	12	1%
Don't know	67	5%



### **1. Recipients' Views on Benefits of the FMCDP**

FMCDP participants were asked what benefits they had received from the project. Only 6 percent said they had not received any benefits. Another 14 percent were not sure, and the remaining 80 percent named one or more benefits they felt they had received. The most commonly stated benefit was receiving more food, cited by 40 percent of the coupon recipients. Another common response was better nutrition or better food (i.e., fresher, higher quality, etc.). This was cited by 37 percent of the recipients. Eight percent of the recipients also mentioned that the project had helped them financially. Typical responses included:

"We are eating much better since we got the coupons."

"[The FMCDP] gives you a chance to try different vegetables."

"I love the food I get at the markets -- it makes me feel good."

"It was really nice of WIC to offer the project."

### **2. Recipients' Views on Problems With the FMCDP**

Coupon recipients were also asked what problems they perceived with the project. Only 17 percent said they saw problems with the FMCDP. When asked to identify the problems, a number of responses were given. Approximately seven percent of the coupon recipients said they thought that farmers' markets were not convenient (i.e., location, hours of operation, etc.). Fewer than three percent of the coupon recipients surveyed cited each of the following problems: difficulty of coupon use, too few coupons distributed, too few participating farmers or markets, and poor selection or quality of produce at farmers' markets.

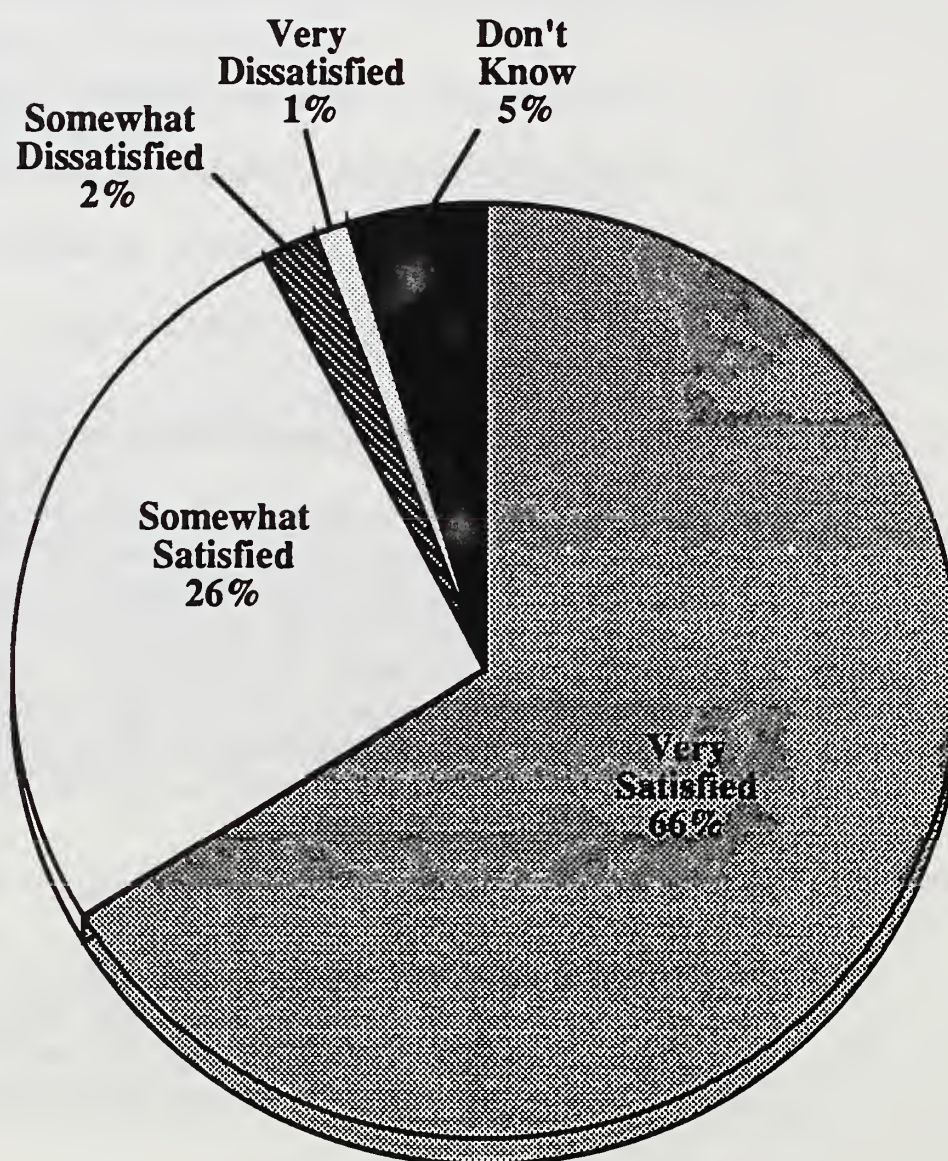
### **3. Recipients' Satisfaction With the FMCDP**

Recipient satisfaction with the FMCDP was extremely high (see Figure III.2). Two-thirds of the recipients indicated they were "very satisfied", and another 26 percent said they were "somewhat satisfied" with the FMCDP. Only two percent were "somewhat dissatisfied", and only one percent were "very dissatisfied".

**FIGURE III.2**

**OVERALL SATISFACTION OF  
COUPON RECIPIENTS**

**Question Asked:** Considering the Farmers' Market Coupon Project, overall are you very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied?





## **G. CONCLUSIONS**

The FMCDP appears to have met its objectives with regard to WIC women. Statistical tests confirmed that, compared to non-recipients, coupon recipients consumed more fruits and vegetables and more often shopped at farmers' markets. Coupon recipients generally said that they intended to continue this behavior after they no longer receive coupons, and the analysis of a small sub-sample of prior recipients suggests that this is true.

## **IV. EFFECT OF FMCDP ON FARMERS**

### **A. INTRODUCTION**

The evaluation of the effect of the FMCDP on farmers is based primarily on data collected through in-person interviews with participating and non-participating farmers. The farmers interviewed were selected through a three stage process. First, 24 participating markets were selected at random. Second, for each sampled participating market, a matching non-participating market was chosen that resembled the participating market as closely as possible in terms of location, size, variety of products, and demographic composition of the clientele. Finally, each sampled market was visited and a random sample of farmers at the market were interviewed. A total of 265 participating farmers and 139 non-participating farmers were interviewed between August 11 and September 22, 1990. Farmer interviews were supplemented with interviews of market managers, and with visits to local grocery stores to obtain price comparisons.

### **B. POPULATION PROFILE**

#### **1. Size and Scope of Farming Operations**

Table IV.1 compares the size and scope of farming operations of FMCDP participating and non-participating farmers. Farmers who accepted farmers' market coupons tended to have larger farming operations than those who did not accept coupons. This may be a result of the way participating farmers and markets were selected, with preference often given to established operations. The median number of acres farmed was 15 for participating farmers as compared to 3 for non-participating farmers. While not displayed on Table IV.1, a large number of "hobby farmers" (i.e., farmers who sell excess produce from a small garden plot at a farmers' market) were found among the non-participant group. Fully 23 percent of the non-participating farmers farmed less than one acre, as compared to only 7 percent of the FMCDP participants. FMCDP participants also had more full-time, part-time and seasonal workers.

Many of the interviewed farmers were also involved in other types of farming. Both participating and non-participating farmers appear equally involved in many farming pursuits. Livestock or poultry farming, however, is much more common among FMCDP participants.

Table IV.2 summarizes the distribution of reported gross and net farm sales, as well as the percentage of gross sales that is from sales at farmers' markets. Because the income data is so variable, three measures of distribution are used in each case: the 25th percentile (1st quartile), the 50th percentile (median), and the 75th percentile (3rd quartile). Comparisons of participating and non-participating farmers are made within each of three farm size categories. While farmers were



TABLE IV.1

## SIZE AND SCOPE OF FARMING OPERATIONS

COMPARATIVE ANALYSIS OF FARMERS	FMCDP Participating		Non-Participating	
<b>Completed Interviews</b>				
Number	265		139	
<b>Farm Acreage</b>				
5 acres or less	93	35%	80	58%
6 to 40 acres	90	34%	35	25%
41 or more acres	82	31%	24	17%
Median acres farmed	15		3	
<b>Farm Labor (average)</b>				
Full-time workers	2.6		1.4	
Part-time workers	1.9		1.8	
Seasonal workers	2.0		1.4	
<b>Other types of Farming (Multiple Response Possible)</b>				
Livestock or poultry	69	26%	28	20%
Grain	54	20%	29	21%
Horticulture	29	11%	18	13%
Dairy	14	5%	5	4%

**TABLE IV.2**  
**FARM INCOME AND EXPENSES<sup>†</sup>**

COMPARATIVE ANALYSIS OF FARMERS	Responses	Percentile		
		25th	50th	75th
<b>Gross Farm Income</b>				
<u>Farms less than 5 acres</u>				
FMCDP Participant	85	\$900	\$2,400	\$6,500
Non-Participant	75	\$200	\$700	\$3,000
<u>Farms between 6 and 40 acres</u>				
FMCDP Participant	81	\$4,000	\$8,500	\$18,000
Non-Participant	32	\$2,013	\$7,000	\$22,250
<u>Farms more than 41 acres</u>				
FMCDP Participant	66	\$7,700	\$24,000	\$60,000
Non-Participant	22	\$3,450	\$7,408	\$64,500
<b>Net Farm Income</b>				
<u>Farms less than 5 acres</u>				
FMCDP Participant	80	\$0	\$500	\$2,900
Non-Participant	66	\$0	\$300	\$1,240
<u>Farms between 6 and 40 acres</u>				
FMCDP Participant	69	\$0	\$3,000	\$8,000
Non-Participant	29	\$0	\$1,860	\$10,000
<u>Farms more than 41 acres</u>				
FMCDP Participant	51	\$0	\$6,000	\$28,000
Non-Participant	18	(\$4,684)	\$4,388	\$23,000
<b>Percentage of Gross Farm Income Attributable to Farmers' Markets</b>				
<u>Farms less than 5 acres</u>				
FMCDP Participant	82	77%	100%	100%
Non-Participant	66	100%	100%	100%
<u>Farms between 6 and 40 acres</u>				
FMCDP Participant	71	30%	78%	100%
Non-Participant	28	43%	75%	100%
<u>Farms more than 41 acres</u>				
FMCDP Participant	60	19%	56%	100%
Non-Participant	22	<1%	43%	100%

<sup>†</sup>Data of questionable accuracy due to respondent reluctance to fully disclose income.



generally quite willing to discuss their sales at farmers' markets, many were very reluctant to provide data on sales outside of farmers' markets. As a result, the table may understate gross and net sales, and may overstate the relative contribution of sales at farmers' markets.

## **2. Involvement with Farmers' Markets**

Table IV.3 compares the farmers' market operations of participating and non-participating farmers. Because this table is descriptive in nature, statistical tests of significance were deemed inappropriate and were not performed. Many of the measures are similar for both participating and non-participating farmers, but there are also some important differences. Participating farmers have been selling longer (i.e., more years) at farmers' markets than non-participating farmers. This may be due to the criteria used to select participating markets and farmers which often gave preference to established operations. Participating farmers also appear more motivated by the monetary benefits of selling at farmers' markets. While 28 percent of the participating farmers reported that they sell at the market because they get good prices, only 19 percent of the non-participating farmers did so. About one-third of both groups reported that one of the reasons they sell at farmers' markets is that they enjoy the social experience. A number of farmers (64 percent of the FMCDP participants and 70 percent of the non-participants) mentioned miscellaneous reasons for selling at farmers' markets. These ranged from business and income related reasons to hobby and personal enjoyment.

Participating farmers sell more months per year, more days per week, and more hours per day. On average, they sell five hours a day, three days a week, and five months per year. On average, non-participating farmers only sell two days per week and four months per year. This is consistent with the differences in farm size observed in Table IV.1. Non-participating farmers are also somewhat more likely to share a stand with another farmer. These differences may be due to the tendency to select more established markets for participation in the FMCDP.

Both groups of farmers grow about 95 percent of the fresh fruit and vegetables that they sell at farmers markets, although the resale of fruits and vegetables purchased wholesale was slightly more common among non-participants.

## **C. EFFECT OF FMCDP ON FARMERS' INCOME**

The original plan for measuring the effect of the FMCDP on farmer income was to compare incomes between the participant and non-participant farmer groups. However, the results of the previous section demonstrate that the FMCDP tends to attract farmers with larger farming operations, and that FMCDP participants

TABLE IV.3

## INVOLVEMENT WITH FARMERS' MARKETS

COMPARATIVE ANALYSIS OF FARMERS	FMCDP Participating		Non-Participating	
<b>Completed Interviews</b>				
Number	265		139	
<b>Years Selling at Farmers' Markets</b>				
Median years	8		6	
<b>Reasons for Selling (Multiple Response Possible)</b>				
Social experience	87	33%	41	30%
Good prices for products	75	28%	26	19%
Extra products to sell	52	20%	26	19%
Other reasons	170	64%	97	70%
<b>Time Spent Selling</b>				
Average months per year	4.7		4.0	
Average days per week	2.8		2.0	
Average hours per day	5.2		4.9	
<b>Sharing Stands with Other Farmers</b>				
Yes	12	5%	9	7%
No	250	94%	129	93%
Don't know	2	1%	1	<1%
<b>Sources of Fruits and Vegetables Sold (average percent)</b>				
Self grown	96%		93%	
Purchased wholesale	4%		7%	



tend to sell their products at farmers markets more days a week and more months a year than non-participants. As a result, direct income comparisons between the participant and non-participant groups would overstate the effect of the FMCDP on farmers. Therefore, the effect of the FMCDP on farmers is measured based on estimates provided by the participating farmers.

Table IV.4 summarizes the self-reported effect of FMCDP on the income of participating farmers. Farmers averaged \$39 in coupon redemptions on weekdays (17.9 percent of weekday sales) and \$27 in coupon redemptions on Saturdays (about 8.3 percent of Saturday sales). In aggregate, farmers averaged \$459 in coupon redemptions for the season as of the time of interview. Farmers with 5 or fewer acres averaged \$178 in total redemptions as compared to \$723 for farmers with over 40 acres.

Income from farmers' market coupons varied considerably among farmers. Over 40 percent of the farmers interviewed had yet to receive any coupons. A small group of farmers, about three percent, had each received over \$2,000 in farmers' market coupons. One-third of the coupons received by farmers in the sample were received by five of the 265 participating farmers surveyed. Four of those five farmers sold at markets in Massachusetts; three of them at the same market.

On average, farmers reported a 12 percent increase in farmers' market sales since participating in the FMCDP. While the average reported increase in sales did not vary markedly based on size of operation, the reported increase did vary considerably among farmers. About 42 percent of the participating farmers reported no increase in sales, while 11 percent of the participating farmers reported increases in sales of more than 30 percent. Variability in the effect of the FMCDP was most pronounced among farmers who farmed 5 or fewer acres.

In conclusion, the FMCDP has generally had a small effect on farmer income. Over 80 percent of the farmers interviewed had received less than \$500 in coupons, and 42 percent said they had not had an increase in sales since participating in the project.

#### **D. EFFECT OF FMCDP ON PRICES**

When participating farmers were asked how their prices had changed as a result of participation in the FMCDP, 4 percent said they increased, 80 percent said they stayed the same, and 6 percent said they decreased. To independently test the effect of the FMCDP on prices, farmers were asked to list the fresh fruits and vegetables they sold and the current price. Then, the prices charged by participating and non-participating farmers were compared to those charged at 47 grocery stores near the participating and non-participating markets.

TABLE IV.4

## EFFECT OF FMCDP ON FARM INCOME

FMCDP PARTICIPATING FARMERS	Total	Farm Size		
		0-5 acres	6-40 acres	41+ acres
<b>Completed Interviews</b>				
Number	265	93	90	82
<b>Saturday</b>				
Average sales	\$321.27	\$147.07	\$272.96	\$559.71
Average coupons	\$26.68	\$16.05	\$29.18	\$34.90
Coupons as a percent of sales	8.3%	10.9%	10.7%	6.2%
<b>Weekday</b>				
Average sales	\$216.74	\$106.31	\$200.19	\$355.00
Average coupons	\$38.82	\$22.15	\$30.76	\$65.05
Coupons as a percent of sales	17.9%	20.8%	15.4%	18.3%
<b>Coupons Received (Year to Date)</b>				
\$0 to \$100	44%	61%	40%	29%
\$101 to \$500	37%	33%	35%	43%
\$501 to \$2,000	16%	6%	25%	18%
\$2,001 or more	3%	0%	1%	10%
Average	\$459.14	\$177.78	\$527.15	\$722.61
<b>Increase in Sales since FMCDP Participation</b>				
0 percent	42%	48%	40%	39%
1 to 5 percent	13%	8%	15%	15%
6 to 10 percent	14%	9%	11%	23%
11 to 30 percent	20%	22%	21%	16%
31 percent or more	11%	13%	12%	8%
Average	11.9%	11.8%	13.9%	9.8%



Table IV.5 summarizes the price comparison for the ten products most commonly sold at farmers' markets. Each of the ten products was sold by one-fourth or more of the farmers interviewed. Only one fruit, apples, made the list, although berries would have qualified if all varieties (i.e., blueberry, blackberry, strawberry, raspberry, etc.) were grouped together. Farmers often sold similar products using very dissimilar units of measure (e.g., beans by the pound, quart, or basket), and it was not possible to accurately convert to a single unit of measure. For this reason, the price comparisons found in Table IV.5 were calculated using the most common unit of measure for each product.

There appears to be little difference in the average prices offered by participating and non-participating farmers. The non-participating average price is lowest for six of the ten products listed, and the participating average price is lowest for the other four. The grocery store average price is nearly always highest (equal for green beans, and one cent less per dozen for corn), although it is often competitive. Of course, such comparisons cannot account for the variations in quality which can also influence price or value. Anecdotal evidence from field interviewers suggests that the farmers' market prices were generally much lower than grocery store prices, and that farmers' market produce typically offered much greater value for each dollar spent.

#### **E. EFFECT OF FMCDP ON FARMING OPERATIONS**

Table IV.6 summarizes how participating farmers have responded to the influx of coupon expenditures.

The vast majority (73%) of FMCDP participants said the project had no effect on their decision to sell at the farmers' market this season. While over one-fourth (26%) acknowledged that the FMCDP had some influence on their decision, only eight percent said it had a large effect.

Only 10 percent of the FMCDP participants indicated that they would change their crop plan next year as a result of demand from farmers' market coupon recipients. Among that ten percent, nearly every change represented a net increase in acreage farmed. Vegetables were cited most often as crops to increase, and only two fruits, melons and berries, were mentioned at all. This is not surprising given that it is typically easier to expand vegetable production in the short run (orchards require time to grow and mature). Farmers newly participating in the FMCDP were much more likely to plan crop changes than those who had been involved longer with the project.

**TABLE IV.5**  
**PRODUCT AND PRICE COMPARISONS<sup>†</sup>**

Product	Farmers Selling	Grocers Selling	Average Prices <sup>‡</sup>		
			Participating	Non- Participating	Grocery Store
Tomatoes	335	43	\$0.69/lb.	<u>\$0.66/lb.</u>	\$0.87/lb.
Green Peppers	231	46	\$0.82/lb.	<u>\$0.78/lb.</u>	\$0.90/lb.
Green Beans	230	46	\$0.85/lb.	<u>\$0.82/lb.</u>	\$0.85/lb.
Squash	201	46	<u>\$0.42/lb.</u>	\$0.49/lb.	\$0.61/lb.
Cucumbers	197	40	<u>\$0.19/ea.</u>	\$0.22/ea.	\$0.27/ea.
Corn	182	34	\$1.94/doz.	<u>\$1.78/doz.</u>	\$1.93/doz.
Potatoes	155	46	<u>\$0.38/lb.</u>	\$0.41/lb.	\$0.49/lb.
Onions	135	46	<u>\$0.42/lb.</u>	\$0.43/lb.	\$0.90/lb.
Apples	100	33	\$0.54/lb.	<u>\$0.40/lb.</u>	\$0.81/lb.
Cabbage	99	34	\$0.27/lb.	<u>\$0.23/lb.</u>	\$0.33/lb.

<sup>†</sup>Units of measure for a given product were not uniform, or even comparable, for all farmers. Average prices were only calculated for farmers who used the most common unit of measure for that particular product.

<sup>‡</sup>Lowest Price is Underlined



TABLE IV.6

## EFFECT OF FMCDP ON FARMING OPERATIONS

FMCDP PARTICIPATING FARMERS	FMCDP Participating	
<b>Completed Interviews</b>		
Number	265	
<b>Influence of FMCDP on Decision to Sell at Farmers' Markets</b>		
Large effect	20	8%
Moderate effect	20	8%
Small effect	27	10%
No effect	193	73%
Don't know	1	<1%
<b>Change in Crop Plan Next Year Due to FMCDP</b>		
Yes	27	10%
No	216	82%
Don't know	14	5%
<b>Change in Time Spent Selling at Farmers' Markets Since FMCDP Participation</b>		
Yes	27	10%
No	220	83%
Don't know	11	4%
<b>Change in Display or Packaging Since FMCDP Participation</b>		
Yes	31	12%
No	218	82%
Don't know	9	3%

Ten percent of the participating farmers reported they spent extra time selling at the farmers' market due to the FMCDP. On average, those 10 percent spent nearly two extra hours per day and nearly one extra day per week at the farmers' market.

Only 12 percent of the participating farmers reported that they changed their packaging or the way they display their goods as a result of the FMCDP. In almost every case, the change involved preparing even \$1 and \$2 containers of food so as not to interfere with the FMCDP stricture against providing change.

## **F. OPINIONS ABOUT THE PROJECT**

### **1. Opinions of Participating Farmers**

The opinions of FMCDP participants are summarized in Table IV.7. When asked about their overall opinion of the FMCDP, 61 percent of the participating farmers surveyed said that it should be continued as it is. Another 28 percent said that it should undergo minor modifications. Only 5 percent suggested that major modifications were in order, and only one person out of the 265 interviewed said they thought it should be discontinued. Overall, the participating farmers (including the many who have received only marginal benefits) appear quite supportive of the project. Many of the farmers interviewed stated that, while they do not receive significant benefits from the FMCDP, the project should be continued because it benefits the women who receive coupons.

While quite supportive of the project, over 40 percent of the farmers interviewed said there were some problems with the project as it currently exists. The most commonly mentioned problems were that the denomination of coupons was too high (20 percent), the reimbursement process was too slow or difficult (10 percent), and that the women redeeming coupons needed instruction on the produce offered at the market (10 percent). In addition, 8 percent said that not enough coupons are given out. Over three-fourths of the participating farmers rated the training and instruction they received from the market manager as excellent or good.

Each participating farmer was also asked to make any general comments they wished about the project. Over 70 percent responded, most replying simply that the FMCDP is a "good program," and that they "agree with the concept." Others made more specific comments:



TABLE IV.7

## PARTICIPANT OPINIONS ABOUT THE PROJECT

FMCDP PARTICIPATING FARMERS	FMCDP Participating	
<b>Completed Interviews</b>		
Number	265	
<b>Overall Opinion Regarding FMCDP</b>		
Should be continued as is	162	61%
Should be continued with minor modifications	73	28%
Should be continued with major modifications	13	5%
Should be discontinued	1	<1%
Don't know	10	4%
<b>Perceived Problems with FMCDP</b>		
Yes	113	43%
No	142	54%
Don't know	5	2%
<b>Identified Problems (Multiple Response Possible)</b>		
Denomination of coupons too high	53	20%
Reimbursement too slow or difficult	26	10%
Consumers lack culinary information	26	10%
Don't give out enough coupons	21	8%
<b>Quality of Information Provided</b>		
Excellent	69	26%
Good	134	51%
Fair	22	8%
Poor	6	2%
Don't know	19	7%

"More education and literature should be provided for WIC participants; many don't know how to buy and prepare produce."

"I would like to see other programs like this created for the elderly and such."

"[The FMCDP] is one of the easiest government programs to deal with."

"[The FMCDP] gets fresh fruit and vegetables to people who would not buy otherwise."

## **2. Opinions of Non-Participating Farmers**

Table IV.8 displays the results of two important survey questions which were asked of all non-participating farmers. First, non-participating farmers were asked "why don't you participate in the FMCDP?" By far the most common responses were that they hadn't heard of it, or that it was unavailable at their market (i.e., they sell at a non-participating market). Only 12 percent of the non-participating farmers said they did not participate in the project because it was too much trouble.

Second, all non-participants were asked "do you plan to participate in the FMCDP next year?" One-fourth said they did, and another 30 percent said they weren't sure. This indicates that there is potential for project expansion. However, not all of those wishing to participate will have the opportunity. Only 14 percent of the market managers at the non-participating markets visited said their market planned to participate in the FMCDP next year (1991).

## **G. CONCLUSIONS**

FMCDP has had only a small effect on the income of most participating farmers. Because of this, relatively few farmers have changed their operations. Less than one-third of the participating farmers surveyed mentioned any change in prices, crop plan, time selling at markets, or display and packaging of products. Length of FMCDP participation had little relation to these operational changes except in one case: farmers who participated longer were less likely to plan crop changes.

In spite of the relatively small effect on farmer income, participating farmers are generally very supportive of the project. Should the project receive additional funding, it seems certain that additional farmers will join.



TABLE IV.8

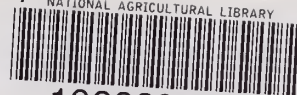
## NON-PARTICIPANT OPINIONS ABOUT THE PROJECT

NON-PARTICIPATING FARMERS	Non-Participating	
<b>Completed Interviews</b>		
Number	139	
<b>Reasons for Not Participating</b> (Multiple Response Possible)		
Never heard of it	58	42%
Not available at markets where I sell	45	32%
Too much trouble	17	12%
Government involvement	10	7%
Coupon sales too small	5	4%
Never asked	5	4%
<b>Plan to Participate Next Year</b>		
Yes	34	25%
No	45	32%
Don't know	42	30%
No response	18	13%





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